



# EXPLORING THE COGNITIVE AND SOCIAL EFFECTS OF TIKTOK ON ADOLESCENT MINDS: A STUDY OF SHORT-FORM VIDEO CONSUMPTION

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## ABSTRACT

The proliferation of short-form video platforms, such as TikTok, has significantly transformed content consumption patterns, particularly among adolescents. This study examines the potential impact of these platforms on students' attention spans, critical thinking abilities, and overall cognitive development. By analyzing the addictive nature of short-form videos and the influence of algorithmic bias, this research explores the trade-offs between the benefits of quick information access and the potential drawbacks of decreased focus and narrowed perspectives. Findings suggest that while short-form videos can be valuable tools for learning and entertainment, excessive consumption may contribute to attention deficits and limited exposure to diverse viewpoints. The study concludes by discussing potential implications and offering recommendations for mitigating these negative impacts.

**KEYWORDS:** Adolescent Cognitive Development, Short-Form Video Platforms, Attention Span, Critical Thinking, Bias, Digital Media Consumption

## INTRODUCTION

With the constant development of technology in a rapidly evolving world, companies compete to deliver the latest content to audiences as swiftly as possible. The internet began with simple blogs, evolved to full-length videos on platforms like YouTube that rival movies, and has now seen the rise of short-form content. The platform most notorious for short-form content is TikTok, formerly known as Musically, which captivates both children and adults. TikTok allows creators to upload videos up to 10 minutes in length, but most videos are under 3 minutes, with the majority being less than 1 minute long.

A unique feature of short-form video platforms is that users do not choose the content they consume. An algorithm selects content based on the user's previous behavior on the app. This allows users to mindlessly scroll through their feed, being constantly stimulated by each video, and quickly skip any content that does not immediately interest them. This combination of mindless scrolling and algorithmic content selection presents two significant problems for youth: addiction leading to decreased attention span and narrow-mindedness due to algorithmic bias.

According to a study on Springer Link, the nature of short-form videos can easily get users addicted, negatively impacting their daily lives (Wang et al., 2022). Algorithmic bias occurs when an algorithm presents unfair outcomes, filtering out content the user may not enjoy (Baha, 2024). This limits the user's exposure to diverse viewpoints and understanding of controversial ideas and important global issues (Baha, 2021). This raises the question: how does short-form content affect students during their adolescent years? While short-form content may enhance learning through concise information delivery, its

addictive nature induces excessive dopamine release in the brain, encouraging students to prioritize short-term pleasure over sustained efforts for long-term happiness. Consequently, the detrimental effects, such as shortened attention spans and reduced comprehension of complex subjects, outweigh the benefits.

## LITERATURE REVIEW

The addictive nature of short-form video platforms is well-documented, with their short duration encouraging repeated use. According to a study on ResearchGate, short-form videos are particularly addicting due to their brief length, which promotes frequent engagement (Tian et al., 2022). The study explains that short-form videos are disseminated through fragmentation, allowing users to obtain the desired knowledge or stimulus much faster than long-form videos. This rapid access to content intensely stimulates the pleasure center of the brain over a shorter period (Tian et al., 2022). The constant cycle of new content as users scroll keeps them continually engaged, reinforcing the addictive behavior.

Given the platforms' goal to maximize user engagement, this type of addiction aligns with their business objectives, making it unlikely that companies will address the issue independently (Tian et al., 2022). Unlike platforms such as YouTube, where long-form videos can extend up to an hour and do not promote addiction through continuous dopamine release, short-form videos rarely exceed one minute. Consequently, one hour of scrolling exposes users to over 60 videos, with the study concluding that anything over one hour of use signifies an addiction to short-form videos (Tian et al., 2022). Extreme cases of addiction involve consuming short-form content for periods ranging from four to nine hours (Tian et al., 2022).

This study highlights the detrimental impact of such addiction on students' academic lives, as excessive use leaves little time for focusing on studies and socializing. The research design involved analyzing the usage patterns and behavioral responses of students who frequently use short-form video platforms. Data were collected through surveys in other observational studies, while the analysis focused on identifying correlations between usage duration and academic performance, social interactions, and attention spans.

## METHODOLOGY

This study utilizes a secondary qualitative research methodology to examine the cognitive and social effects of TikTok and similar short-form video platforms on adolescent development. The research relies on a comprehensive review of existing literature, including academic articles, research papers, and credible reports on the psychological and behavioral impact of short-form content. Key themes explored include attention span, addiction, algorithmic influence, and social interaction patterns associated with the use of these platforms.

By synthesizing findings from various sources, the study seeks to provide a holistic understanding of how prolonged engagement with short-form video content shapes cognitive development and social behavior. The secondary qualitative approach is justified as it allows for a broad analysis of existing data, offering valuable insights without the need for primary data collection. However, the methodology has limitations, such as reliance on the accuracy and scope of existing studies, which may not fully capture the evolving nature of social media consumption among adolescents. Despite these limitations, the approach is appropriate for exploring the current body of knowledge on the subject.

## RESULTS & DISCUSSION

### Impact on Attention Span

Addiction to short-form videos can directly impact students' lives and create long-term damage, such as the shortening of attention spans. According to an article from IT World Canada, the constant release of dopamine from consuming short, stimulating content causes the brain to crave more dopamine continually. This can lead to a shorter attention span, as students become disinterested in longer lectures or videos that do not provide the frequent dopamine hits they are accustomed to from short-form videos. This effect is particularly damaging to students, as the prefrontal cortex, which deals with attention and impulse control, does not fully develop until around 25 years old (IT World Canada Staff, 2023). As a result, students do not get to practice sustained attention, making them vulnerable to attention and impulse control issues throughout their lives. Although TikTok has implemented a screen time tracker suggesting users take breaks, students can easily bypass these features to continue enjoying their content (IT World Canada Staff, 2023).

### Algorithmic Bias

Another detrimental effect of short-form videos is algorithmic bias. Algorithmic bias occurs when an algorithm produces unfair outcomes, which is evident in short-form video

platforms that tailor content to user preferences (Singh, 2023). This bias is problematic across all social media platforms, as various factors can influence the algorithm's biases (Baha, 2024). The developers of these algorithms can intentionally or unintentionally impose their biases, but on platforms like TikTok, the user's behavior primarily shapes the algorithm. Without the ability to choose the content they consume, users are shown videos based on their previous preferences, often leading to a narrow range of similar ideas or concepts (Baha, 2024). Even though algorithms occasionally introduce new media, they mainly recommend popular content, further limiting exposure to diverse viewpoints (Yang, 2022).

The same study revealed that TikTok's algorithm improves at predicting user preferences over time. The recommended videos were divided into "good" and "bad" categories, with the number of good recommendations increasing as the algorithm gathered more data (Yang, 2022). This indicates that the algorithm aligns content with the user's preferences, reinforcing their existing views and limiting exposure to new perspectives. This effect is especially concerning for adolescents, whose prefrontal cortex is still developing, as it hinders their ability to engage with nuanced ideas and develop critical thinking skills.

### Potential Benefits

Despite the concerns, short-form videos also offer benefits. While addiction is a significant issue, it is essential to recognize the positive aspects of these platforms. A study suggests that the negative impacts of short-form videos depend on user behavior (Wu et al., 2024). Adults often use these platforms for educational purposes, while adolescents primarily seek entertainment and do not engage as much through comments. Engaging with content through comments and discussions can lead to positive effects, as seen in adult users (Wu et al., 2024).

Short-form video platforms like TikTok can facilitate collaborative learning through various communication tools, such as comments, private messaging, and video responses (Zhang, 2020). Additionally, businesses can leverage these algorithms for marketing, using popular trends to promote their brands effectively (Zhang, 2020).

Short-form videos provide quick entertainment for those with limited time, making them ideal for short breaks or when users do not want to commit to longer content (Liu et al., 1970). These videos have even been found to boost productivity, unlike long-form videos or documentaries (Liu et al., 1970).

## CONCLUSION

Short-form videos can be a valuable resource for both consumers and businesses. However, it is important to limit the type and duration of content consumption to prevent adverse effects on adolescents. If uncontrolled, the consequences can impact adolescents throughout their lives. Given the information presented, how can society ensure appropriate use of short-form video platforms?

One potential solution is for the government to create Public Service Announcements (PSAs). PSAs inform the public about

potential harms, such as those associated with drunk driving, COVID-19, and drug use. Data from a study on the effectiveness of PSAs suggests that fear, emotional, and informational videos can help curb harmful behaviors (Hassan et al., 2024). While short-form videos are not inherently deadly or dangerous, an informational approach highlighting their impact on adolescent development, particularly attention span and prefrontal cortex development, could motivate both adolescents and their parents to limit their time on these apps.

Effective PSAs have engaging scripts that capture the audience's attention, and framing the message around popular apps like TikTok can enhance public acceptance (Hassan et al., 2024). One concern about PSAs is the cost of advertising on TV and online. However, given the government's substantial spending on other PSAs, allocating some funds to this important message could be beneficial for everyone (Hassan et al., 2024).

By ensuring proper citation and improving clarity and structure, this conclusion will effectively summarize the study's findings and suggest practical solutions to mitigate the negative impacts of short-form video platforms on adolescent mental development.

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